CLAIMS

1. A method of modifying in-rush current during power-on for a power conversion system having a duty cycle and frequency, the method comprising:

measuring the in-rush current following power-on;

determining a new duty cycle and frequency for the power conversion system in response to the measured in-rush current; and

storing the determined duty cycle and frequency for use by the power conversion system.

2. The method of claim 1 wherein the elements are repeated in an iterative process to obtain optimal duty cycle and frequency.

3. The method of claim 1 wherein the new duty cycle and frequency are determined empirically.

4. The method of claim 1 wherein the new duty cycle and frequency are determined as a function of a simulation of the power conversion system.

5. The method of claim 1 wherein the new duty cycle and frequency are independently determined.

6. The method of claim 1 wherein the wherein the new duty cycle and frequency are determined at a high level of assembly to take into account both parasitic and process induced variations.

7. The method of claim 1 wherein the duty cycle and frequency are continuously modified in real time in response to varying in-rush current measurements.

8. A method of modifying in-rush current during power-on for a power conversion system having a duty cycle and frequency, the method comprising:

measuring the in-rush current following power-on;

determining a new duty cycle and frequency for the power conversion system in response to the measured in-rush current;

setting the duty cycle and frequency for clock pulses for the power conversion system; and

while power-on is in progress, repeating the measuring, determining and setting elements.

9. The method of claim 8 wherein a new duty cycle and frequency is determined if the measured in-rush current is above a predetermined threshold.

10. The method of claim 9 wherein the predetermined threshold is below a maximum permissible in-rush current.

11. A method of modifying in-rush current during power-on for a power conversion system having a duty cycle and frequency, the method comprising:

measuring the in-rush current following power-on;

determining a new duty cycle and frequency for the power conversion system in response to the measured in-rush current;

setting a new duty cycle and frequency for clock pulses for the power conversion system; and

using the new duty cycle for the next subsequent power-up.

12. A system that modifies in-rush current during power-on for a power conversion system having a duty cycle and frequency, the system comprising:

means for measuring the in-rush current following power-on;

means for determining a new duty cycle and frequency for the power conversion system in response to the measured in-rush current; and

means for storing the determined duty cycle and frequency for use by the power conversion system.

13. The system of claim 12 wherein the elements are repeated in an iterative process to obtain optimal duty cycle and frequency.

14. The system of claim 12 wherein the new duty cycle and frequency are determined empirically.

15. The system of claim 12 wherein the new duty cycle and frequency are determined as a function of a simulation of the power conversion system.

16. The system of claim 12 wherein the duty cycle and frequency are continuously modified in real time in response to varying in-rush current measurements.

17. A system for controlling in-rush current during power-on, the system comprising:

a power conversion system;

a logic device coupled to the power conversion system for providing a duty cycle parameter and a frequency parameter to the power conversion system, wherein the parameters are externally programmable;

a measurement device that measures in-rush current characteristics during power-on; and

a correction device that modifies the parameters in response to the measured in-rush current characteristics and programs the parameters into the logic device.

18. The system of claim 17 wherein the new duty cycle and frequency are determined empirically.

19. The system of claim 17 wherein the new duty cycle and frequency are determined as a function of a simulation of the power conversion system.

20. The system of claim 17 wherein the new duty cycle and frequency are independently determined.

21. The system of claim 17 wherein the wherein the new duty cycle and frequency are determined at a high level of assembly to take into account both parasitic and process induced variations.